WE CLAIM:

1. An *in vitro* adhesion cell culture of $GFAP^+$ cells, wherein

a) one or more cells in the culture have the capacity to differentiate into neurons;

b) the cell culture divides in a culture medium containing serum and at least one proliferation-inducing growth factor; and

c) one or more cells in the culture differentiate into neurons upon withdrawal of both serum and the proliferation-inducing growth factor.

2. The cell culture of claim 1, wherein the majority of cells in the culture are $nestin^+$ under proliferation-promoting culture conditions.

3. An *in vitro* cell culture consisting essentially of:

(a) a culture medium containing serum and at least one proliferation-inducing growth factor; and

(b) cells derived from the central nervous system of a mammal, wherein the cells in the culture are:

(i) glial fibrillary acidic protein immunoreactive ($GFAP^+$),

(ii) capable of proliferating in a culture medium containing serum and at least one proliferation-inducing growth factor, and

(iii) capable of differentiating into neurons in the absence of both the serum and the proliferation-inducing growth factor from the culture medium.

4. The cell culture of claim 3, wherein the majority of cells in the culture are nestin immunoreactive ($nestin^+$) under proliferation-promoting culture conditions.

5. The cell culture of claim 1 or 3, wherein the cell culture differentiates into at least 10% neurons under differentiation-inducing culture conditions.

6. The cell culture of claim 1 or 3, wherein the cell culture differentiates into at least 25% neurons under differentiation-inducing culture conditions.

7. The cell culture of claim 1 or 3, wherein, under differentiation-inducing culture conditions, the majority of differentiated neuronal cells have a GABA-ergic phenotype.

8. The cell culture of claim 1 or 3, wherein the culture is capable of at least 6 doublings.

9. The cell culture of claim 1 or 3, wherein the culture is capable of at least 12 least doublings.

10. The cell culture of claim 1 or 3, wherein the culture is capable of at least 18 doublings.

11. The cell culture of claim 1 or 3, wherein the cells are derived from the lateral ganglionic eminence (LGE) or medial ganglionic eminence (MGE) of a mammal.

12. The cell culture of claim 1 or 3, wherein the doubling rate of the culture is faster than seven days.

13. The cell culture of claim 1 or 3, wherein the cells in the culture are murine.

14. The cell culture of claim 1 or 3, wherein the cells in the culture are human.

15. The cell culture of claim 1 or 3, wherein fewer than 5% of the cells in the culture are β-tubulin III immunoreactive (β-tubulin III$^+$) under proliferation-promoting culture conditions and between 10-40% of the cells in the culture are β-tubulin III immunoreactive (β-tubulin III$^+$) under differentiation-inducing culture conditions.

16. The cell culture of claim 1 or 3, wherein the proliferation-inducing growth factor is selected from the group consisting of epidermal growth factor, amphiregulin, basic fibroblast growth factor, acidic fibroblast growth factor, transforming growth factor alpha, leukemia inibitor factor, ciliary neurotrophic factor and combinations thereof.

17. The cell culture of claim 3, wherein the culture is an adhesion culture.

18. The cell culture of claim 1 or 3, wherein at least some of the cells in culture differentiate into glia in the absence of serum from the culture medium.

19. The cell culture of claim 18, wherein the glia are both $GFAP^+$ and vimentin positive.

20. The cell culture of claim 18, wherein the morphology of the glia is:
(a) bipolar;
(b) elongated; and
(c) non-fibrillary.

21. The cell culture of claim 1 or 3, wherein at least some of the cells in culture, under differentiation-inducing culture conditions, differentiate into neurons that exhibit:
(a) axon-dendrite polarity,
(b) synaptic terminals, and
(c) localization of proteins involved in synaptogenesis and synaptic activity including
(i) neurotransmitter receptors,
(ii) transporters, and
(iii) processing enzymes.

22. A method of producing a neuronal cell *in vitro* comprising the steps of:
(a) obtaining neural tissue from a mammal, the neural tissue containing at least one $GFAP^+$ cell capable of producing progeny that is a $GFAP^+$ cell;

(b) dissociating the neural tissue to obtain a cell suspension comprising the $GFAP^+$ cell;

(c) culturing the cell suspension in a first culture medium containing serum and at least one proliferation-inducing growth factor to proliferate said $GFAP^+$ cell and produce a $GFAP^+$ cell progeny; and

(d) differentiating the cell progeny in a second culture medium that is substantially free of both the serum and the proliferation-inducing growth factor.

23. The method of claim 22, wherein the cell is $nestin^+$.

24. A method of producing a non-neuronal cell *in vitro* comprising the steps of:

(a) obtaining neural tissue from a mammal, the neural tissue containing at least one $GFAP^+$ cell capable of producing progeny that is a $GFAP^+$ cell;

(b) dissociating the neural tissue to obtain a cell suspension comprising the $GFAP^+$ cell;

(c) culturing the cell suspension in a first culture medium containing serum and at least one proliferation-inducing growth factor to proliferate said $GFAP^+$ cell and produce a $GFAP^+$ cell progeny; and

(d) differentiating the cell progeny in a second culture medium that is substantially free of the serum.

25. The method of claim 24, wherein the cell is $nestin^+$.

26. The method of claim 24, wherein the non-neuronal cell is an astrocyte or an oligodendrocyte.

27. A method of producing a genetically modified $GFAP^+$ cell comprising the steps of:

(a) obtaining neural tissue from a mammal, the neural tissue containing at least one $GFAP^+$ cell capable of producing progeny that is a $GFAP^+$ cell;

(b) dissociating the neural tissue to obtain a cell suspension comprising the $GFAP^+$ cell;

(c) culturing the cell suspension in a first culture medium containing serum and at least one proliferation-inducing growth factor to proliferate said $GFAP^+$ cell and produce a $GFAP^+$ cell progeny; and

(d) genetically modifying the $GFAP^+$ cell to express a biologically active agent.

28. The method of claim 27, wherein the cell is $nestin^+$.

29. The method of claim 27, wherein the biologically active agent is selected from the group consisting of growth factors, trophic factors, growth factor receptors, neurotransmitters, neuropeptides, neurotrophic factors, hormones, enzymes, cytokines, lymphokines, anti-angiogenic factors, transcription factors, proliferation factors and antibodies.

30. A method of producing a genetically modified differentiated neural cell culture comprising the steps of:

(a) obtaining neural tissue from a mammal, the neural tissue containing at least one $GFAP^+$ cell capable of producing progeny that is a GFAP positive neural cell;

(b) dissociating the neural tissue to obtain a cell suspension comprising the $GFAP^+$ cell;

(c) culturing the cell suspension in a first culture medium containing serum and at least one proliferation-inducing growth factor to proliferate said $GFAP^+$ cell and produce a $GFAP^+$ cell progeny;

(d) differentiating the cell progeny to contain at least 10% neurons in a second culture medium that is substantially free of both the serum and the proliferation-inducing growth factor.

(e) genetically modifying the differentiated cell to express a biologically active agent.

31. The method of claim 30, wherein the cell is $nestin^+$.

32. A method of producing a genetically modified non-neuronal cell culture comprising the steps of:

(a) obtaining neural tissue from a mammal, the neural tissue containing at least one $GFAP^+$ cell capable of producing progeny that is a GFAP positive neural cell;

(b) dissociating the neural tissue to obtain a cell suspension comprising the $GFAP^+$ cell;

(c) culturing the cell suspension in a first culture medium containing serum and at least one proliferation-inducing growth factor to proliferate said $GFAP^+$ cell and produce a $GFAP^+$ cell progeny;

(d) differentiating the cell culture to contain at least 10% glia in a second culture medium that is substantially free of serum, wherein the glia are $GFAP^+$ and vimentin positive, and

(e) genetically modifying the non-neuronal cell.

33. The method of claim 32, wherein the cell is $nestin^+$.

34. A method of transplanting $GFAP^+$ $nestin^+$ cell progeny to a host comprising:

(a) obtaining neural tissue from a mammal, said neural tissue containing at least one $GFAP^+$ $nestin^+$ cell capable of producing progeny that are capable of differentiating into neurons and glia;

(b) dissociating the neural tissue to obtain a cell suspension comprising the $GFAP^+$ $nestin^+$ cell;

(c) culturing the cell suspension in a culture medium containing serum and at least one proliferation-inducing growth factor to proliferate the $GFAP^+$ $nestin^+$ cell and produce $GFAP^+$ $nestin^+$ cell progeny; and

(d) transplanting the $GFAP^+$ $nestin^+$ cell progeny to the host.

35. The method of claim 34 wherein prior to step (d), the $GFAP^+$ $nestin^+$ cell progeny are

genetically modified to express a biologically active agent.

36. The method of claim 35 wherein the biologically active agent is selected from the group consisting of growth factors, trophic factors, growth factor receptors, neurotransmitters, neuropeptides, neurotrophic factors, hormones, enzymes, cytokines, lymphokines, anti-angiogenic factors, transcription factors, proliferation factors and antibodies.

37. A method for determining the effect of at least one biological agent on a $GFAP^+$ $nestin^+$ cell comprising:

(a) obtaining neural tissue from a mammal, the neural tissue containing at least one $GFAP^+$ $nestin^+$ cell capable of producing progeny that is a $GFAP^+$ $nestin^+$ cell;

(b) dissociating the neural tissue to obtain a cell suspension comprising the $GFAP^+$ $nestin^+$ cell;

(c) culturing the cell suspension in a first culture medium containing serum and at least one proliferation-inducing growth factor to proliferate said $GFAP^+$ $nestin^+$ cell and produce a $GFAP^+$ $nestin^+$ cell progeny;

(d) contacting the proliferated $GFAP^+$ $nestin^+$ cell with the biological agent, and

(e) determining the effect of the biological agent on the $GFAP^+$ $nestin^+$ cells.

38. The method of claim 37, wherein the biological agent is selected from the group consisting of basic fibroblast growth factor, acid fibroblast growth factor, epidermal growth factor, transforming growth factor α, transforming growth factor β, nerve growth factor, insulin like growth factor, platelet derived growth factor, glial cell line-derived neurotrophic factor, growth/differentiation factor, brain derived neurotrophic factor, ciliary neurotrophic factor, phorbol 12-myristate 13-acetate, thyrotropin, activin, thyrotropin releasing hormone, interleukins, bone morphogenic protein, macrophage inflammatory proteins, heparan sulfate, amphiregulin, retinoic acid, tumor necrosis factor α, fibroblast growth factor receptor, epidermal growth factor receptor.

39. A method for determining the effect of at least one biological agent on the differentiation of $GFAP^+$ $nestin^+$ cells comprising:

(a) obtaining neural tissue from a mammal, the neural tissue containing at least one $GFAP^+$ $nestin^+$ cell capable of producing progeny that is a $GFAP^+$ $nestin^+$ cell;

(b) dissociating the neural tissue to obtain a cell suspension comprising the $GFAP^+$ $nestin^+$ cell;

(c) culturing the cell suspension in a first culture medium containing serum and at least one proliferation-inducing growth factor to proliferate said $GFAP^+$ $nestin^+$ cell and produce a $GFAP^+$ $nestin^+$ cell progeny;

(c) inducing the proliferated $GFAP^+$ $nestin^+$ cells to differentiate in a second culture medium in the presence said biological agent, and

(d) determining the effects of the biological agent on the differentiation of the $GFAP^+$ $nestin^+$ cells.

40. A method for determining the effect of at least one biological agent on differentiated $GFAP^+$ $nestin^+$ cells comprising:

(a) obtaining neural tissue from a mammal, the neural tissue containing at least one $GFAP^+$ $nestin^+$ cell capable of producing progeny that is a $GFAP^+$ $nestin^+$ cell;

(b) dissociating the neural tissue to obtain a cell suspension comprising the $GFAP^+$ $nestin^+$ cell;

(c) culturing the cell suspension in a first culture medium containing serum and at least one proliferation-inducing growth factor to proliferate the $GFAP^+$ $nestin^+$ cell and produce a $GFAP^+$ $nestin^+$ cell progeny;

(d) inducing the proliferated $GFAP^+$ $nestin^+$ cells to differentiate into neurons or glia,

(e) contacting the differentiated neural cells with the biological agent, and

(f) determining the effects of the biological agent on said differentiated neural cells.

41. A cDNA library prepared from a cell according to claim 1.

42. A cell population consisting essentially of isolated $GFAP^+$ $nestin^+$ cells.

43. The method of claim 22 wherein under differentiation-inducing culture conditions, the majority of differentiated neuronal cells have a GABA-ergic phenotype.

44. The method of claim 22 wherein the majority of differentiated neuronal cells are immunoreactive with striatal neuronal markers.

45. The method of claim 44 wherein said striatal neuronal markers are DLX1 and/or MEIS2.

46. The method of claim 22 wherein the majority of differentiated neuronal cells are not immunoreactive with cortical neuronal markers.

47. The method of claim 46 wherein the cortical neuronal marker is PAX6.

48. The method of claim 22 wherein the majority of differentiated neuronal cells are not immunoreactive with neuronal markers of the medial ganglionic eminence.

49. The method of claim 48 wherein one of said neuronal markers of the medial ganglionic eminence is NKX2.1.

50. The culture of claim 1 or 3 wherein under differentiation-inducing culture conditions, the majority of differentiated neuronal cells have a GABA-ergic phenotype.

51. The culture of claim 1 or 3 wherein the majority of differentiated neuronal cells are immunoreactive with striatal neuronal markers.

52. The culture of claim 51 wherein said striatal neuronal markers are DLX1 and/or MEIS2.

53. The culture of claim 1 or 3 wherein the majority of differentiated neuronal cells are not immunoreactive with cortical neuronal markers.

54. The culture of claim 53 wherein the cortical neuronal marker is PAX6.

55. The culture of claim 1 or 3 wherein the majority of differentiated neuronal cells are not immunoreactive with neuronal markers of the medial ganglionic eminence.

56. The culture of claim 55 wherein one of said neuronal markers of the medial ganglionic eminence is NKX2.1.